

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 640100-346	FOR FURTHER see Notification (Form PCT/ISA/2	of Transmittal of International Search Report 220) as well as, where applicable, item 5 below.
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)
PCT/US 99/26927	12/11/1999	13/11/1998
Applicant OSIRIS THERAPEUTICS, INC.	et al.	
This International Search Report has bee according to Article 18. A copy is being tr	on prepared by this International Searching Autansmitted to the International Bureau.	hority and is transmitted to the applicant
This International Search Report consists X It is also accompanied by	s of a total of <u>5</u> sheets. v a copy of each prior art document cited in this	s report.
Basis of the report With regard to the language, the	international search was carried out on the balless otherwise indicated under this item.	sis of the international application in the
	was carried out on the basis of a translation of	the international application furnished to this
b. With regard to any nucleotide at was carried out on the basis of the contained in the internation of the filed together with the internation of the furnished subsequently to the statement that the subsequent that the subseq	nd/or amino acid sequence disclosed in the ine sequence listing: onal application in written form. ernational application in computer readable for one this Authority in written form. to this Authority in computer readble form. be sequently furnished written sequence listing as filed has been furnished.	
		is identical to the written sequence listing has been
2. X Certain claims were for 3. Unity of invention is lace	und unsearchable (See Box I). cking (see Box II).	
	ubmitted by the applicant. shed by this Authority to read as follows:	
the text has been establi	ubmitted by the applicant. ished, according to Rule 38.2(b), by this Autho ne date of mailing of this international search re	rity as it appears in Box III. The applicant may, eport, submit comments to this Authority.
as suggested by the app because the applicant fa		X None of the figures.

INTERNATIONAL SEARCH REPORT

CLASSIFICATION OF SUBJECT MATTER
PC 7 A61K35/12 A61K35/28 A01K67/027 C12N5/00 A61K48/00 C12N15/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) A61K A01K C12N Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages Category 9 SROUR E F ET AL.: "Sustained human 1-8 X hematopoiesis in sheep transplanted in utero during early gestation with fractionated adult human bone marrow cells" BLOOD, vol. 79, no. 6, 15 March 1992 (1992-03-15), pages 1404-1412, XP000569644 the whole document -/--Patent family members are listed in annex. Further documents are listed in the continuation of box C. Special categories of cited documents : "T" later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not cited to understand the principle or theory underlying the considered to be of particular relevance invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means document published prior to the international filing date but later than the priority date claimed in the art. "&" document member of the same patent family Date of mailing of the international search report Date of the actual completion of the international search 27/06/2000 9 June 2000 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Teyssier, B Fax: (+31-70) 340-3016

INTERNATIONAL SEARCH REPORT

	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	Relevant to claim No.
Category °	Citation of document, with indication, where appropriate, of the relevant passages	neievani to Gailli No.
X	PROCKOP D J: "Marrow stromal cells as stem cells for nonhematopoietic tissues" SCIENCE, vol. 276, no. 5309, 4 April 1997 (1997-04-04), pages 71-74, XP002139788	1-3
A	pages 73-74, "Potential uses in cell and gene therapy"	4-8, 24-27
X	PEREIRA R F ET AL.: "Cultured adherent cells from marrow can serve as long-lasting precursor cells for bone, cartilage, and lung in irradiated mice" PROC. NAT'L. ACAD. SCI. USA, vol. 92, May 1995 (1995-05), pages 4857-4861, XP002139789 cited in the application	1-3
) A	pages 4859-4861, "Discussion"	4-8, 24-27
Α	WO 97 10348 A (UNIV CALIFORNIA) 20 March 1997 (1997-03-20) page 3, line 31 -page 5, line 14 page 8, line 21 -page 11, line 27	1-8, 24-27
Α	WO 94 26884 A (BIOTECHNOLOGY RES & DEV) 24 November 1994 (1994-11-24) page 1 -page 4, line 26 page 7, line 8 - line 27; claims 1,35	9-23
P, X	LIECHTY K W ET AL.: "Distribution and engraftment of human mesenchymal stem cells (MSC) after in utero transplantation in fetal sheep." BLOOD, vol. 92, no. 10 Suppl. 1, 15 November 1998 (1998-11-15), page 117A XP000914604 40th annual meeting of the American Society of Hematology, 4-8/12/1998 abstract 474	1-27
P,X	WO 99 46366 A (OSIRIS THERAPEUTICS INC) 16 September 1999 (1999-09-16) page 1 -page 2, line 21 page 11, line 15 -page 13, line 28	1-3



	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	Relevant to claim No.
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Helevant to claim No.
T	ALMEIDA-PORADA G ET AL: "Human bone marrow stromal cell progenitors are able to induce donor specific tolerance after in utero transplantation." BLOOD, vol. 94, no. 10 SUPPL. 1 PART 1, 15 November 1999 (1999-11-15), page 40a XPO02139877 41th annual meeting of the American Society of Hematology, 3-7/12-1999 abastract 167	
T	DEVINE S ET AL.: "Studies of mesenchymal stem cells in non-human primates: Evaluation of toxicity and engraftment" BLOOD, vol. 94, no. 10 Suppl. 1, 15 November 1999 (1999-11-15), page 391a XP002139790 41th annual meeting of the American Society of Hematology, 3-7/12/1999 abstract 1733	

INTERNATIONAL SEARCH REPORT

rmation on patent family members

PCT/US 99/26927

Patent document cited in search report	t	Publication date		Patent family member(s)	Publication date
WO 9710348	Α	20-03-1997	AU	7238796 A	01-04-1997
W0 9426884	 A	24-11-1994	US	5523226 A	04-06-1996
WO 342000.	• • •		ΑT	184647 T	15-10-1999
			AU	694126 B	16-07-1998
			AU	7019394 A	12-12-1994
			DE	69420726 D	21-10-1999
			DE	69420726 T	27-04-2000
			EP	0701608 A	20-03-1996
			ES	2140542 T	01-03-2000
			US	5942435 A	24-08-1999
W0 9946366		16-09-1999	AU	2904299 A	27-09-1999

. TENT COOPERATION TREATY

	From the INTERNATIONAL BUREAU	
PCT	То:	
NOTIFICATION OF ELECTION (PCT Rule 61.2)	Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231 ETATS-UNIS D'AMERIQUE	
Date of mailing (day/month/year) 01 September 2000 (01.09.00)	in its capacity as elected Office	
International application No.	Applicant's or agent's file reference	
PCT/US99/26927	640100-346	
International filing date (day/month/year) 12 November 1999 (12.11.99)	Priority date (day/month/year) 13 November 1998 (13.11.98)	
Applicant	13 November 1330 (13.11.30)	
THIEDE, Mark et al		
Timese, Mark of all		
1. The designated Office is hereby notified of its election made with the International Preliminar O9 June 2000 in a notice effecting later election filed with the International Preliminar O9 June 2000 The election X was was not was not was not Rule 32.2(b).	y Examining Authority on: (09.06.00) national Bureau on:	
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Manu Berrod	
Facsimile No.: (41-22) 740 14 35	Telephone No.: (41-22) 338 83 38	



50co

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

REC'D 1 8 OCT 2001 WIPO

(PCT Article 36 and Rule 70)

applicant's or agent's file reference FOR FURTHER ACTION See Notification of Transmittal of International				
640100-346		Preliminary	Examination Report (Form PCT/IPEA/416)	
International application No.	International filing date (da	ay/month/year)	Priority date (day/month/year)	
PCT/US99/26927	12 NOVEMBER 1999		13 NOVEMBER 1998	
International Patent Classification (IPC) Please See Supplemental Sheet.	or national classification and	I IPC		
Applicant OSIRIS THERAPEUTICS, INC.				
Examining Authority and is 2. This REPORT consists of a This report is also accombeen amended and are the	transmitted to the application of sheets. apanied by ANNEXES, i.e., the basis for this report and/outline 607 of the Administrational of sheets. In relating to the following the sheets.	sheets of the desc r sheets containin tive Instructions u	ription, claims and/or drawings which have grectifications made before this Authority.	
II Priority III Non-establishment of report with regard to novelty, inventive step or industrial applicability IV Lack of unity of invention V X Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement				
VI Certain documents	cited			
VII Certain defects in	the international application	n		
VIII Certain observation	ns on the international app	lication		
Date of submission of the demand		Date of completion	n of this report	
09 JUNE 2000		05 SEPTEMBI	ER 2001	
Name and mailing address of the IPEA Commissioner of Patents and Trade Box PCT Washington, D.C. 20231	marks	JOSEPH T. W	KIN TOWKENSE JON OUTACH	
Facsimile No. (703) 305-3230		Telephone No.	(703) 308-0196	

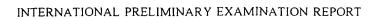
Inte

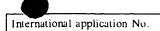
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/26927

l. Basis of the	e report		
1. With regard to	the elements of the interr	national application:*	
the intern	national application a	s originally filed	
the descr	ription:		
x the descripages	-		, as originally filed
pages			
pages		, filed with the letter o	
X the claim			
pages			, as originally filed
pages		, as amended (together	•
pages			, filed with the demand
pages	NONE	, filed with the letter of	
X the draw	ings:		
pages _	1 10		, as originally filed
pages			, filed with the demand
pages	MONE	, filed with the letter of	
P-6		, ,	
X the seque	ence listing part of the	description:	••••
pages _	NONE		, as originally filed
pages			
pages	NONE	, filed with the letter of	`
		the international application (under Ru	
or 55.3).	age of the translation fu	mished for the purposes of international pre-	liminary examination (under Rules 55.2 an
•		or amino acid sequence disclosed in the i	
preliminary e	examination was carrie	d out on the basis of the sequence listing	
		application in printed form.	
filed toge	ether with the internat	tional application in computer readable	form.
furnished	l subsequently to this	Authority in written form.	
furnished	l subsequently to this	Authority in computer readable form.	
The states internation	ment that the subseque nal application as filed	ently furnished written sequence listing do I has been furnished.	es not go beyond the disclosure in the
The stater been furni		n recorded in computer readable form is ide	entical to the writen sequence listing has
X The ame	ndments have resulted	d in the cancellation of:	
X the	description, pages	NONE	
ΓŪ	claims, Nos.	NONE	
	drawings, sheets/fig	NONE	
		(some of) the amendments had not been made	de, since they have been considered to go
		indicated in the Supplemental Box (Rule 70	-
* Replacement she in this report of	eets which have been fur	nished to the receiving Office in response to an l are not annexed to this report since they o	invitation under Article 14 are referred to
and 70.17).	unt chaat containing cuol	h amendments must be referred to under ite	om I and annoyed to this vanort





PCT/US99/26927

Claims 1-27 N Inventive Step (IS) Claims NONE Y Claims 1-27 N Industrial Applicability (IA) Claims 1-27 Y	statement				
Inventive Step (IS) Claims C	Novelty (N)		Claims	NONE	_ Y
Industrial Applicability (IA) Claims 1-27 NONE None Citations and explanations (Rule 70.7) Claims 1-27 lack novelty under PCT Article 33(2) as being anticipated by Liechty et al., WO 99/46366, and Srour et al. Each Liechty et al., WO 99/46366, and Srour et al. anticipates claims 1-27. Claims 1-8 encompass a method for treating a feture comprising administering mesenchymal stem cells to the fetus. No treatment step is recited therefore administration on mesenchymal stem cells into a non-human fetus (claim 4) for any reason is sufficient to meet the limitations of claims 1-8 Claims 9-23 encompass a method for preparing an organ for transplantation comprising administering mesenchyma stem cells in utero and harvesting the said organ. Claims 9-23 differ from the method of claims 1-8 only in that the organ is harvested Claims 24-27 are product claims and encompass a hybrid organ comprising an organ from one species and mesenchymal stem cells from a second species. In light of the specification, following the methods encompassed by claims 1-8 or 9-23 would inherently result in the chimeric organ of claims 24-27. Liechty et al. teach that transplantation of mesenchymal stem cells in fetal sheep results in distribution and engraftment of the stem cell to various organs throughout the sheep up to 85 days. WC 99/46366 teaches transplantation of non-autologous mesenchymal stem cells to a patient in need thereof. It is taught tha systemic administration of the mesenchyma stem cells results in migration to various tissues within the host (page 9, lines 1-9) Finally, in the working examples, results demonstrating that the resulting tissues after transplantation are chimeric provided the basis of using the organs for transplantation scenarios (page 34, lines 21-28). Srour et al. teach human mesenchymal stem cells transplanted into sheep in utero results in the ability of the transplanted cells to undergo hematopoiesis. The bone marrow is harvested and analyzed to demonstrate the karyotype of cells is chimeric, both hum			Claims	1-27	_ N
Industrial Applicability (IA) Claims 1-27 NONE Citations and explanations (Rule 70.7) Claims 1-27 lack novelty under PCT Article 33(2) as being anticipated by Liechty et al., WO 99/46366, and Srour et al. Each Liechty et al., WO 99/46366, and Srour et al. anticipates claims 1-27. Claims 1-8 encompass a method for treating a feture comprising administering mesenchymal stem cells to the fetus. No treatment step is recited therefore administration of mesenchymal stem cells into a non-human fetus (claim 4) for any reason is sufficient to meet the limitations of claims 1-8 Claims 9-23 encompass a method for preparing an organ for transplantation comprising administering mesenchyma stem cells in utero and harvesting the said organ. Claims 9-23 differ from the method of claims 1-8 only in that the organ is harvested Claims 24-27 are product claims and encompass a hybrid organ comprising an organ from one species and mesenchymal stem cells from a second species. In light of the specification, following the methods encompassed by claims 1-8 or 9-23 would inherently result in the chimeric organ of claims 24-27. Liechty et al. teach that transplantation of mesenchymal stem cells in fetal sheep results in distribution and engraftment of the stem cell to various organs throughout the sheep up to 85 days. WC 99/46366 teaches transplantation of non-autologous mesenchymal stem cells to a patient in need thereof. It is taught the systemic administration of the mesenchyma stem cells results in migration to various tissues within the host (page 9, lines 1-9) Finally, in the working examples, results demonstrating that the resulting tissues after transplantation are chimeric provided the basis of using the organs for transplantation scenarios (page 34, lines 21-28). Srour et al. teach human mesenchymal stem cells transplanted into sheep in utero results in the ability of the transplanted cells to undergo hematopoiesis. The bone marrow is harvested and analyzed to de	Inventive Ste	p (IS)	Claims	NONE	Y
Claims NONE			Claims		_ N
Claims NONE			.	1.27	• •
Claims 1-27 lack novelty under PCT Article 33(2) as being anticipated by Liechty et al., WO 99/46366, and Srour et al. Each Liechty et al., WO 99/46366, and Srour et al. anticipates claims 1-27. Claims 1-8 encompass a method for treating a feture comprising administering mesenchymal stem cells to the fetus. No treatment step is recited therefore administration of mesenchymal stem cells into a non-human fetus (claim 4) for any reason is sufficient to meet the limitations of claims 1-8 Claims 9-23 encompass a method for preparing an organ for transplantation comprising administering mesenchyma stem cells in utero and harvesting the said organ. Claims 9-23 differ from the method of claims 1-8 only in that the organ is harvested Claims 24-27 are product claims and encompass a hybrid organ comprising an organ from one species and mesenchymal stem cells from a second species. In light of the specification, following the methods encompassed by claims 1-8 or 9-23 would inherently result in the chimeric organ of claims 24-27. Liechty et al. teach that transplantation of mesenchymal stem cells in fetal sheep results in distribution and engraftment of the stem cell to various organs throughout the sheep up to 85 days. WO 99/46366 teaches transplantation of non-autologous mesenchymal stem cells to a patient in need thereof. It is taught the systemic administration of the mesenchyma stem cells results in migration to various tissues within the host (page 9, lines 1-9) Finally, in the working examples, results demonstrating that the resulting tissues after transplantation are chimeric provided the basis of using the organs for transplantation scenarios (page 34, lines 21-28). Srour et al. teach human mesenchymal stem cells transplanted into sheep in utero results in the ability of the transplanted cells to undergo hematopoiesis. The bone marrow is harvested and analyzed to demonstrate the karyotype of cells is chimeric, both human and ovine (TABLEs 1 and 2). While other tissues are not examined for chimerism, since the same	Industrial Ap	plicability (IA)			– Y – N
	Claims 9-23 encomp in utero and harvesti	ass a method for prepariring the said organ. Claim	tus (claim 4) for ag an organ for as 9-23 differ for	etus. No treatment step is recited therefore administrat or any reason is sufficient to meet the limitations of claim transplantation comprising administering mesenchyma sten rom the method of claims 1-8 only in that the organ is hard	ion on ns 1-8 n cell vested



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US99/26927

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below: IPC(7): A61K 35/12, 35/28, 48/00; A01K 67/027; C12N 5/00, 15/00 and US C1.: 424/493.1; 435/325, 455

.

ering a

M 12/2 11 1

.

٠.

.

1111 23

7

. . .

. .

. .

.. .

WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



· INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7: A61K 35/12, 35/28, 48/00, A01K 67/027, C12N 5/00, 15/00

(11) International Publication Number:

WO 00/29002

A3

(43) International Publication Date:

25 May 2000 (25.05.00)

(21) International Application Number:

PCT/US99/26927

(22) International Filing Date:

12 November 1999 (12.11.99)

(30) Priority Data: 60/108,357

Ą

13 November 1998 (13.11.98)

(71) Applicant (for all designated States except US): OSIRIS THERAPEUTICS, INC. [US/US]; 2001 Aliceanna Street, Baltimore, MD 21231-2001 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): THIEDE, Mark [US/US]; 12572 Markaire Drive, St. Louis, MO 63146 (US). FLAKE, Alan [US/US]; 1131 Springmont Circle, Bryn Mawr, PA 19010 (US).

(74) Agents: LILLIE, Raymond et al.; Carella, Byrne, Bain, Gilfillan, Cecchi, Stewart & Olstein, 6 Becker Farm Road, Roseland, NJ 07068 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, Cl, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(88) Date of publication of the international search report: 5 October 2000 (05.10.00)

(54) Title: IN UTERO TRANSPLANTATION OF HUMAN MESENCHYMAL STEM CELLS

(57) Abstract

The present invention is directed to mesenchymal stem cells for transplantation in utero. Such mesenchymal stem cells may be employed in a method of treating a fetus, or in a method of engrafting mesenchymal stem cells, or in a method of preparing an organ for transplantation.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
ΑT	Austria	FR	France	LU	Luxembourg	SN	Senegal
ΑU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
ΑZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav	TM	Turkmenistan
BF	Burkina Faso	GR	Greece		Republic of Macedonia	TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	υz	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	zw	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's	NZ	New Zealand		
CM	Cameroon		Republic of Korea	PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

onal Application No PCT/US 99/26927

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K35/12 A61K35/28 A61K48/00 C12N15/00

A01K67/027

C12N5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\begin{array}{ll} \mbox{Minimum documentation searched} & \mbox{(classification system followed by classification symbols)} \\ \mbox{IPC 7} & \mbox{A61K} & \mbox{A01K} & \mbox{C12N} \\ \end{array}$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCCIIII	ENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SROUR E F ET AL.: "Sustained human hematopoiesis in sheep transplanted in utero during early gestation with fractionated adult human bone marrow cells" BLOOD, vol. 79, no. 6, 15 March 1992 (1992-03-15), pages 1404-1412, XP000569644 the whole document ————————————————————————————————————	1-8

Y Further documents are listed in the continuation of box C.	Patent family members are listed in annex.		
Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance.	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
"E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone		
which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu- ments, such combination being obvious to a person skilled		
"P" document published prior to the international filing date but later than the priority date claimed	in the art. *&* document member of the same patent family		
Date of the actual completion of the international search	Date of mailing of the international search report		
9 June 2000	27/06/2000		
Name and mailing address of the ISA	Authorized officer		
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo ni, Fax: (+31–70) 340–3016	Teyssier, B		



Inter onal Application No PCT/US 99/26927

C (Continue	etion) DOCIMENTS CONCIDEDED TO BE BELEVANT	
Category °	ation) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PROCKOP D J: "Marrow stromal cells as stem cells for nonhematopoietic tissues" SCIENCE, vol. 276, no. 5309, 4 April 1997 (1997-04-04), pages 71-74, XP002139788	1-3
A	pages 73-74, "Potential uses in cell and gene therapy"	4-8, 24-27
X	PEREIRA R F ET AL.: "Cultured adherent cells from marrow can serve as long-lasting precursor cells for bone, cartilage, and lung in irradiated mice" PROC. NAT'L. ACAD. SCI. USA, vol. 92, May 1995 (1995-05), pages 4857-4861, XP002139789 cited in the application	1-3
Α	pages 4859-4861, "Discussion"	4-8, 24-27
Α	WO 97 10348 A (UNIV CALIFORNIA) 20 March 1997 (1997-03-20) page 3, line 31 -page 5, line 14 page 8, line 21 -page 11, line 27	1-8, 24-27
Α	WO 94 26884 A (BIOTECHNOLOGY RES & DEV) 24 November 1994 (1994-11-24) page 1 -page 4, line 26 page 7, line 8 - line 27; claims 1,35	9-23
P , X	LIECHTY K W ET AL.: "Distribution and engraftment of human mesenchymal stem cells (MSC) after in utero transplantation in fetal sheep." BLOOD, vol. 92, no. 10 Suppl. 1, 15 November 1998 (1998-11-15), page 117A XP000914604 40th annual meeting of the American Society of Hematology, 4-8/12/1998 abstract 474	1-27
Ρ,Χ	WO 99 46366 A (OSIRIS THERAPEUTICS INC) 16 September 1999 (1999-09-16) page 1 -page 2, line 21 page 11, line 15 -page 13, line 28 -/	1-3



Into onal Application No PCT/US 99/26927

		PC1/05 99/2692/	
C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
Т	ALMEIDA-PORADA G ET AL: "Human bone marrow stromal cell progenitors are able to induce donor specific tolerance after in utero transplantation." BLOOD, vol. 94, no. 10 SUPPL. 1 PART 1, 15 November 1999 (1999-11-15), page 40a XP002139877 41th annual meeting of the American Society of Hematology, 3-7/12-1999 abastract 167		
T	abastract 167 DEVINE S ET AL.: "Studies of mesenchymal stem cells in non-human primates: Evaluation of toxicity and engraftment" BLOOD, vol. 94, no. 10 Suppl. 1, 15 November 1999 (1999-11-15), page 391a XPO02139790 41th annual meeting of the American Society of Hematology, 3-7/12/1999 abstract 1733		



information on patent family members

Inter onal Application No PCT/US 99/26927

Patent document cited in search report	t	Publication date		Patent family member(s)	Publication date
WO 9710348	Α	20-03-1997	AU	7238796 A	01-04-1997
WO 9426884	Α	24-11-1994	US	5523226 A	04-06-1996
WO 3 (2000)	••	4 . 33 33 .	AT	184647 T	15-10-1999
			AU	694126 B	16-07-1998
			AU	7019394 A	12-12-1994
			DE	69420726 D	21-10-1999
			DE	69420726 T	27-04-2000
			EP	0701608 A	20-03-1996
			ËS	2140542 T	01-03-2000
			US	5942435 A	24-08-1999
WO 9946366	Α	16-09-1999	AU	2904299 A	27-09-1999